Eſſays *of* natural Experiments *made in the Academy* del Cimento *under the Protection of the moſt Serene Prince* Leopold *of* Tuſcany. *Engliſht by the ingenious* Richard Waller *Eſq*; *Fellow of the* Royal Society.

THis work was publiſhed in *Italian* in the year 1667. and contains ſeveral curious *Experiments* made in the Academy *del Cimento*, at *Florence*: the *Italian* Author thought fit to prefix a *Preface* elegantly diſcovering the deſign of the *Academy*, to advance real knowledge, their Ingenuity, and Candour in communicating their *Experiments*, and their obligations to the great Duke *Ferdinand* of *Tuſcany*, Father to the preſent Duke *Coſmo*.

1. The *Experiments* are couch'd under 10 heads, treating of ſeveral *Subjects*. It were improper in this place to give a large account of each *Particular*; but in ſhort: Having deſcribed ſome of their *Inſtruments*, as *Thermometers* (of which they ſeem to bid faireſt for the *invention*; the firſt having been brought from *Florence*, and ſhewn here, tho they were reduced to a Standard, and received their *perfection* hence) the *Pendulum*, and other *inſtruments*, they come then to their firſt head, the *Airs preſſure*, where moſt of the known *Mercurial Experiments* are tryed, and confirmed, Objections anſwer'd, *&c.* with ſeveral *Experiments* made *in vacuo*, upon as well animate, as inanimate Bodys. Amongſt the reſt is obſervable an *Experiment* of *Sound*; which may be worth repeating, *viz*. that an *Organ Pipe* ſounded *in vacuo*, ſpeaks with little, or no difference, the thin *Æther* it ſeemes being capable of cauſing it. Another *Experiment* is related of a ſmall *Fiſh* that ſurvived the *Wrack* of the *vacuum*, but was thereby ſo far diſabled; that he could never after raiſe himſelfe in the water, but had the *Serpents Curſe* of creeping on his Belly in the Mud.

2. In their ſecond Head of *Freezing* they are very curious in examining the *Expanſion*, Force, and Proceedure

of

of freezing, whereof they have ſet down ſeveral very accurate Tables containing the gradual increaſe of *Bulke*, and particular time of every change happening in divers *Fluids*, theſe *Experiments* were made by an Artificial application of *Salt*, and *Snow* to the outſide of the veſſels. There are likewiſe many Tryals of *Freezing* naturally by the ſimple cold of the air. To theſe are added ſome *Experiments* about the alteration of the capacity of veſſels by *Heat* and *Cold*.

3. *Experiments* to ſhew *Water* uncapable of Compreſſion.

4. Againſt *Poſitive Levity.*

5. *Magnetical* Experiments.

6. They treat of *Electric* Bodys; which are ſo, which not, where many *Experiments* are tryed, chiefly with *Amber*.

7. About the change of *Colours* of *Fluids* by the mixture of other *fluids*; where 'tis obſervable that water ſtill'd in *Lead* inturbidates all *Spring*, *River*, and *Bath* waters.

8. About the Motion of *Sounds* made with ſeveral *Cannon*, and *Muſket* ſhot.

9. Of *Projected Bodys*, their motion.

The 10*th*, contains a Miſcellany of *Experiments* not reducible to any of the former heads; as the Comparative weight of *air*, and *water*, Difference of weight of Bodys hot, and cold. Force of heat in *Rarefaction*, which was indeed very great, breaking a ſtone Pavement &c. Of *Glaſs* whether penetrable: of Light, and its quick motion: of *Burning-Glaſſes*: of Bodys affording *Light* when broken to pieces. *Experiments* touching the Digeſtion of *Animals*, which ſeemes to be by attrition; Grinding to Powder all bodys of what ſolidity ſoever.

So much ſhall ſuffice for a ſlight view of the work, which in moſt if not all the *Experiments* is very nice, curious, and faithful: but to ſatisfy thoſe that deſire a fuller information I recommend the *Book* it ſelf as very well worth the Peruſal, and by this *Tranſlation* eaſy to be procured.

OXFORD,
Printed at the *THEATER*, and are to be ſold by *Moſes Pitt*,
at the *Angel*, and *Samuel Smith*, at the *Princes Arms* in St.
Paul's Church-yard LONDON. 1684.